Regulations (Standards - 29 CFR)

Overhead and gantry cranes. - 1910.179

- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** N
- **Subpart Title:** Materials Handling and Storage
- **Standard Number:** 1910.179
- **Title:** Overhead and gantry cranes.

1910.179(a)

Definitions applicable to this section.

1910.179(a)(1)

A "crane" is a machine for lifting and lowering a load and moving it horizontally, with the hoisting mechanism an integral part of the machine. Cranes, whether fixed or mobile are driven manually or by power.

1910.179(a)(2)

An "automatic crane" is a machine which performs a predetermined operation through one cycle or cycles.

1910.179(a)(3)

A "cab-operated crane" is a crane controlled by an operator in a cab located on the bridge or trolley.

1910.179(a)(4)

"Cantilever gantry crane" means a gantry or semigantry crane in which the bridge girders or trusses extend transversely beyond the crane runway on one or both sides.

1910.179(a)(5)

"Floor-operated crane" means a crane that is pendant or nonconductive rope controlled by an operator on the floor or an independent platform.

..1910.179(a)(6)

1910.179(a)(6)

"Gantry crane" means a crane similar to an overhead crane except that the bridge for carrying the trolley or trolleys is rigidly supported on two or more legs running on fixed rails or other runway.

1910.179(a)(7)

SAMPLE

"Hot metal handling crane" means an overhead crane used for transporting or pouring molten material.

1910.179(a)(8)

"Overhead crane" means a crane with a movable bridge carrying a movable or fixed hoisting mechanism and traveling on an overhead fixed runway structure.

1910.179(a)(9)

"Power-operated crane" means a crane whose mechanism is driven by electric, air, hydraulic, or internal combustion means.

1910.179(a)(10)

A "pulpit-operated crane" is a cran erat om xe pe r statio hed to the crane.

1910.179(11)

A "remote-o rane s a ne t d an erator no a pulpit or in the cab attached to the cra y a d o r n p da or rope control.

1910.179(a)(

A "semigantry crane" is a gantry crane with one end of the bridge rigidly supported on one or more legs that run on a fixed rail or runway, the other end of the bridge being supported by a truck running on an elevated rail or runway.

..1910.179(a)(13)

1910.179(a)(13)

"Storage bridge crane" means a gantry type crane of long span usually used for bulk storage of material; the bridge girders or trusses are rigidly or non-rigidly supported on one or more legs. It may have one or more fixed or hinged cantilever ends.

1910.179(a)(14)

"Wall crane" means a crane having a jib with or without trolley and supported from a sidewall or line of columns of a building. It is a traveling type and operates on a runway attached to the sidewall or columns.

1910.179(a)(15)

"Appointed" means assigned specific responsibilities by the employer or the employer's representative.

SAMPLE

1910.179(a)(16)

"ANSI" means the American National Standards Institute.

1910.179(a)(17)

An "auxiliary hoist" is a supplemental hoisting unit of lighter capacity and usually higher speed than provided for the main hoist.

1910.179(a)(18)

A "brake" is a device used for retarding or stopping motion by friction or power means.

1910.179(a)(19)

A "drag brake" is a brake that provides retarding fo[illegible]with [illegible]externa[illegible]ntrol.

1910.179(a)(20)

A "holdin[illegible]" is a [illegible]that [illegible]at [illegible]pr[illegible]otic[illegible]when po[illegible]is off

..1910.17[illegible]

1910.179(a)(21)

"Bridge" me[illegible]par[illegible] a crane consisting of girders, trucks, end ties, footwalks, and drive mechanism that carry the trolley or trolleys.

1910.179(a)(22)

"Bridge travel" means the crane movement in a direction parallel to the crane runway.

1910.179(a)(23)

A "bumper" [buffer] is an energy absorbing device for reducing impact when a moving crane or trolley reaches the end of its permitted travel; or when two moving cranes or trolleys come in contact.

1910.179(a)(24)

The "cab" is the operator's compartment on a crane.

1910.179(a)(25)

"Clearance" means the distance from any part of the crane to a point of the nearest obstruction.

1910.179(a)(26)

SAMPLE

"Collectors current" are contacting devices for collecting current from runway or bridge conductors.

1910.179(a)(27)

"Conductors, bridge" are the electrical conductors located along the bridge structure of a crane to provide power to the trolley.

1910.179(a)(28)

"Conductors, runway" [main] are the electrical conductors located along a crane runway to provide power to the crane.

..1910.179(a)(29)

1910.179(a)(29)

The [illegible] brak[illegible]eans [illegible] of [illegible]ng [illegible]e moto[illegible]eed [illegible]hen in an ove[illegible]ilm[illegible]ond[illegible]

1910[illegible]30)

"Cour[illegible]torq[illegible] r[illegible]ns a [illegible]h[illegible]of control by which the power to the motor is reversed to develo[illegible]n [illegible]opposite direction.

1910.179(a)(31)

"Dynamic" means a method of controlling crane motor speeds when in the overhauling condition to provide a retarding force.

1910.179(a)(32)

"Regenerative" means a form of dynamic braking in which the electrical energy generated is fed back into the power system.

1910.179(a)(33)

"Mechanical" means a method of control by friction.

1910.179(a)(34)

"Controller, spring return" means a controller which when released will return automatically to a neutral position.

1910.179(a)(35)

"Designated" means selected or assigned by the employer or the employer's representative as being qualified to perform specific duties.

SAMPLE

1910.179(a)(36)

A "drift point" means a point on a travel motion controller that releases the brake while the motor is not energized. This allows for coasting before the brake is set.

..1910.179(a)(37)

1910.179(a)(37)

The "drum" is the cylin[illegible]l mei[illegible]ar[illegible]wh[illegible]the[illegible]e wound[illegible] raising or lowering t[illegible]

1910.179[illegible]38)

An "equalizer" is [illegible]evi[illegible]np[illegible]sa[illegible]fo[illegible]ne[illegible]al length or stretch of a rope.

1910.179(a[illegible]

"Exposed" means capable of being contacted inadvertently. Applied to hazardous objects not adequately guarded or isolated.

1910.179(a)(40)

"Fail-safe" means a provision designed to automatically stop or safely control any motion in which a malfunction occurs.

1910.179(a)(41)

"Footwalk" means the walkway with handrail, attached to the bridge or trolley for access purposes.

1910.179(a)(42)

A "hoist" is an apparatus that may be a part of a crane, exerting a force for lifting or lowering.

1910.179(a)(43)

"Hoist chain" means the load bearing chain in a hoist.

NOTE: Chain properties do not conform to those shown in ANSI B30.9-1971, Safety Code for Slings.

1910.179(a)(44)

"Hoist motion" means that motion of a crane which raises and lowers a load.

1910.179(a)(45)

SAMPLE

"Load" means the total superimposed weight on the load block or hook.

..1910.179(a)(46)

1910.179(a)(46)

The "load block" is the assembly of hook or shackle, swivel, bearing, sheaves, pins, and frame suspended by the hoisting rope.

1910.179(a)(47)

"Magnet" means an electromagnetic device carried on a crane hook to [illegible] loads magnetically.

1910.179(a)(48)

"Main hoist" means the hoist mechanism which provides for lifting the maximum rated load.

1910.179(a)(49)

A "man trolley" is a trolley carrying a platform or cage attached thereto.

1910.179(a)(50)

"Rated load" means the maximum load for which a crane or individual hoist is designed and built by the manufacturer and shown on the equipment nameplate(s).

1910.179(a)(51)

"Rope" refers to wire rope, unless otherwise specified.

1910.179(a)(52)

"Running sheave" means a sheave which rotates as the load block is raised or lowered.

1910.179(a)(53)

"Runway" means an assembly of rails, beams, girders, brackets, and framework on which the crane or trolley travels.

1910.179(a)(54)

"Side pull" means that portion of the hoist pull acting horizontally when the hoist lines are not operated vertically.

..1910.179(a)(55)

1910.179(a)(55)

SAMPLE

"Span" means the horizontal distance center to center of runway rails.

1910.179(a)(56)

"Standby crane" means a crane which is not in regular service but which is used occasionally or intermittently as required.

1910.179(a)(57)

A "stop" is a device to limit travel of a trolley or bridge. This device normally is attached to a fixed structure and normally does not absorb energy absorbing capability.

1910.179(a)(58)

A "switch" is a device for making, breaking, or changing the connections in an electric circuit.

1910.179(a)(

An "emergency stop switch" is a manually or automatically operated electric switch to cut off electric power independently of the regular operating controls.

1910.179(a)(60)

A "limit switch" is a switch that is operated by some part or motion of a power-driven machine or equipment to alter the electric circuit associated with the machine or equipment.

1910.179(a)(61)

A "main switch" is a switch controlling the entire power supply to the crane.

1910.179(a)(62)

A "master switch" is a switch that dominates the operation of contactors, relays, or other remotely operated devices.

..1910.179(a)(63)

1910.179(a)(63)

The "trolley" is the unit that travels on the bridge rails and carries the hoisting mechanism.

1910.179(a)(64)

"Trolley travel" means the trolley movement at right angles to the crane runway.

1910.179(a)(65)

SAMPLE

"Truck" means the unit consisting of a frame, wheels, bearings, and axles that support the bridge girders or trolleys.

1910.179(b)

General requirements -

1910.179(b)(1)

Application. This section applies to overhead and gantry cranes, including semigantry, cantilever gantry, wall cranes, storage bridge cranes, and others having the same fundamental characteristics. These cranes are grouped because they all have trolleys and similar travel characteristics.

1910.179(b)(2)

New and existing equip t. All ov d a gar cr s const d and installed on or after t 31, 1 shall th gr atio of the A rican National Standard ety ode f rhea C Cr , ANSI 0.2.0-19 is incorporat by referen as ecif 10

SAMPLE

..1910.179(b)(3)

1910.179(b

Modifications. Cranes may be modified and rerated provided such modifications and the supporting structure are checked thoroughly for the new rated load by a qualified engineer or the equipment manufacturer. The crane shall be tested in accordance with paragraph (k) (2) of this section. New rated load shall be displayed in accordance with subparagraph (5) of this paragraph.

1910.179(b)(4)

Wind indicators and rail clamps. Outdoor storage bridges shall be provided with automatic rail clamps. A wind-indicating device shall be provided which will give a visible or audible alarm to the bridge operator at a predetermined wind velocity. If the clamps act on the railheads, any beads or weld flash on the railheads shall be ground off.

1910.179(b)(5)

Rated load marking. The rated load of the crane shall be plainly marked on each side of the crane, and if the crane has more than one hoisting unit, each hoist shall have its rated load marked on it or its load block and this marking shall be clearly legible from the ground or floor.

1910.179(b)(6)

Clearance from obstruction.

Overhead and gantry cranes. - 1910.179

1910.179(b)(6)(i)

Minimum clearance of 3 inches overhead and 2 inches laterally shall be provided and maintained between crane and obstructions in conformity with Crane Manufacturers Association of America, Inc, Specification No. 61, which is incorporated by reference as specified in Sec. 1910.6, (formerly the Electric Overhead Crane Institute, Inc).

..1910.179(b)(6)(ii)

1910.179(b)(6)(ii)

Where passag[illegible]or wal[illegible]s are [illegible]de [illegible]tru[illegible] all[illegible] be plac[illegible]so that safety of personnel [illegible]par[illegible]y m[illegible] [illegible]he[illegible].

1910.179(b)([illegible])

Clearance betwe[illegible]n pa[illegible]el [illegible]es. [illegible]he [illegible]w[illegible]s of two cranes are parallel, and there are no intervening wal[illegible]tu[illegible]here shall be adequate clearance provided and maintained between the two [illegible].

SAMPLE

1910.179(b)(8)

Designated personnel - Only designated personnel shall be permitted to operate a crane covered by this section.

1910.179(c)

Cabs -

1910.179(c)(1)

Cab location.

1910.179(c)(1)(i)

The general arrangement of the cab and the location of control and protective equipment shall be such that all operating handles are within convenient reach of the operator when facing the area to be served by the load hook, or while facing the direction of travel of the cab. The arrangement shall allow the operator a full view of the load hook in all positions.

1910.179(c)(1)(ii)

The cab shall be located to afford a minimum of 3 inches clearance from all fixed structures within its area of possible movement.

..1910.179(c)(2)

1910.179(c)(2)

Overhead and gantry cranes. - 1910.179

Access to crane. Access to the cab and/or bridge walkway shall be by a conveniently placed fixed ladder, stairs, or platform requiring no step over any gap exceeding 12 inches. Fixed ladders shall be in conformance with the American National Standard Safety Code for Fixed Ladders, ANSI A14.3-1956, which is incorporated by reference as specified in Sec. 1910.6.

1910.179(c)(3)

Fire extinguisher. Carbon tetrachloride extinguishers shall not be used.

1910.179(c)(4)

Lighting. Light in the cab shall be sufficient to enable the operator to see clearly enough to perform his work.

1910.179(d)

Footwalks and ladder

1910.179(d)(1)

Location of walks

1910.179(d)(1)

If sufficient headroom is available on cab-operated cranes, a footwalk shall be provided on the drive side along the entire length of the bridge of all cranes having the trolley running on the top of the girders.

1910.179(d)(1)(ii)

Where footwalks are located in no case shall less than 48 inches of headroom be provided.

1910.179(d)(2)

Construction of footwalks.

1910.179(d)(2)(i)

Footwalks shall be of rigid construction and designed to sustain a distributed load of at least 50 pounds per square foot.

1910.179(d)(2)(ii)

Footwalks shall have a walking surface of antislip type.

NOTE: Wood will meet this requirement.

..1910.179(d)(2)(iii)

SAMPLE